REMARKS

Claims 1-72 are pending in the present application. Claims 1-72 are rejected. Applicants believe that the present application is in condition for allowance, which prompt and favorable action is respectfully requested.

Interview Summary

Applicants' representatives Raphael Freiwirth and James Hagler would like to thank Examiner Mehrpour for conducting a telephonic interview with them on February 6, 2007. During the interview, issues related to defining short-slot cycles were discussed and will be presented in this response.

35 U.S.C. 102 Rejection

Claims 1-3, 8, 11-12, 16, 19-20, 26, 33, 38, 44, 47-48, 52, 55-57, 65-66, 67, 70 are rejected under 35 U.S.C. 102 as being allegedly anticipated by U.S. Patent No. 6,711,413 by Heidari ("Heidari"). The rejection asserts that Heidari allegedly teaches each element of the claims. Applicants respectfully traverse the rejection.

Applicants' claims are generally directed for providing short-slot-sycle paging information between a communication device (CD) and a base station (BS). Specifically, independent claim 1 recites a method wherein the CD provides the feature of a short-slot-cycle paging information to a BS comprising "determining whether the BS is capable of short-slot-cycle paging; and indicating that the CD is also capable for short-slot-cycle paging if the BS is determined to be capable of short-slot-cycle paging." Similarly, claim 11 recites a method wherein the BS indicates the feature of a short-slot-cycle paging information to a CD comprising "indicating to a communication device (CD) that the BS is capable of short-slot-cycle paging, receiving information from the CD, indicating that the CD is also capable for short-slot-cycle paging; and paging the CD based on the received information." This in general aids in shorter

call setups. See Para. [0043]. As discussed below, Heidari simply does not teach or suggest the feature of communicating the capability of short-slot-cycle paging between a CD and BS. In fact, Heidari simply teaches the use of the quick-paging channel (QPCH) to preserve battery life and never mentions or discloses a short-slot-cycle paging.

The Applicant's application ("app") defines short-slot cycles. Slot cycle arrangements are well known in the art, for instance, generally known as a setting that controls the length of a slot. A slot is defined as (1.28 seconds)*($2^{\text{slot cycle}}$). So if slot cycle 0 is 1.28 seconds, then slot cycle 1 is 2.56 seconds, slot cycle 2 is 5.12 seconds, etc. Fig. 5 shows an embodiment of a slot cycle arrangement where a slot cycle of 1.28 seconds further consists of 16 slots of 0.08 seconds each. As well known in the art, a CD is typically assigned a slot within the slot cycle and wakes up every 1.28 seconds to check that particular slot. Therefore, using Fig. 5 as a reference, a CD that was assigned slot 3 in a slot cycle of 1.28 seconds, would wake up every 1.28 seconds, offset 240 MSEC from the start of each slot cycle. However, the general advantage of a shorter slot cycle is the phone gets more chances to receive a page, but this makes the phone use more power, therefore it is less favorable for those that wish to conserve power. A short-slot cycle arrangement, as generally defined in the app, is a fast call setup mode of the mobile station ("MS") and Group Communications Device ("CD"). Referring to Paras. 43-46, Figs. 5-6 and table 1 of the app, it states that

> "As discussed above, for some applications, such as group call services, shorter call set ups are required. In one embodiment, SCI (SLOT_CYCLE_INDEX) takes negative values, such as -1, -2, -3, and -4. Negative SCI values shorten paging delays and hence call set up delays. FIG. 6 illustrates a flow diagram for providing short-slot-cycle paging in a base station. BS may advertise its capability of negative slot-cycle-index paging to the target CDs … to indicate whether BS supports negative slot-cycle-index paging. In step 604, the BS that supports negative slot-cycle-index paging receives and interprets the WLL_INCL field … In step 606, if the WLL_INCL field is set to "1" in the received registration message, origination message, or page response message, indicating that the CD that sent one of these messages is also capable of negative slot-cycle-

> index paging, the BS interprets the slot-cycle-index value as being negative, as shown in Table 1 … Otherwise, if the received slot cycle index has a decimal value of 0, 1, 2, 3, or 4, the BS interprets the received slot-cycle-index value as being negative, in step 612. A slot-cycle-index value of -1 causes the BS to page the target CD every eight slots, or every 0.64 seconds. A slot cycle index value of -2 causes the BS to page the target CD every four slots, or every 0.32 seconds. A slot cycle index value of -3 causes the BS to page the target CD every two slots, or every 0.16 seconds. A slot cycle index value of -4 causes the BS to page the target CD every slot, or every 0.08 seconds, providing a relatively shorter slot cycle paging."

Table 1 clearly shows an interpretation of the WLL__INCL field to force the BS to page the CD at a quicker rate than ordinarily done, which is the short-slot cycle as presented. Therefore, as defined in this app, a short-slot cycle is a cycle that may encompass two or more slots within the generally known single slot of 1.28 seconds. For instance, referring to Fig. 5, in a short-slot cycle a CD might be assigned slots 3 and 11, wherein the CD would wake up every 64 MSEC to check the paging channel.

Heidari discloses methods and systems for a CD to determine whether to use "page indication bits broadcast upon a quick-paging channel (F-QPCH), or to merely monitor the paging channel in conventional manner" depending upon a determination of the operating characteristics, such as noise or fading levels, and deciding on a course of action to use or ignore the QPCH without consultation to the base station. Abstract, Col. 7, line 66 –Col. 8, line 24. Heidari's objective is to increase battery life of the CD by determining when to monitor the F-QPCH bits, not to provide shorter call setups, nor to provide any communication to the BS of what the CD is capable of.

While Heidari generally discusses the use F-QPCH, it simply does not discuss the use of the paging channel for short-cycles, specifically short-slot cycles as defined in the app. It appears that previous office actions may have mistakenly implied that the use of the F-QPCH is the same as using short-slot cycles. It is well-known in the art that connecting an F-QPCH bit

with an associated slot of the paging channel is to allow for less battery consumption by having the CD or CM simply monitor a bit that is pre-determined in absolute time step with a paging channel slot. The 3GPP2 standard for definition of the F-QPCH states:

> The mobile station's assigned Quick Paging Channel slots are offset from its assigned Paging Channel slots by 100 ms, as shown in Figure 2.6.2.1.2.1-1. Two paging indicators are assigned to a mobile station in its assigned Quick Paging Channel slot. In the following, t* is the start time of the mobile station's assigned Paging Channel slot. According to the hash function specified in 2.6.7.1, paging indicators are assigned as follows:
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> • The first paging indicator for the mobile station is assigned between (t*-100) ms and (t*-80) ms (marked as 1 in Figure 2.6.2.1.2.1-1) and the second paging indicator is assigned between (t*-60) ms and (t*-40) ms (marked as 3 in the figure); or
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> • The first paging indicator for the mobile station is assigned between (t*-80) ms and (t*-60) ms (marked as 2 in the figure) and the second paging indicator is assigned between (t*-40) ms and (t*-20) ms (marked as 4 in the figure). 3GPP2 C.S0005-0, "Upper Layer (Layer 3) Signaling Standard for cdma2000 Spread Spectrum Systems", Version 1.0, July 1999, pg 2-53-54, 2.6.2.1.2 Quick Paging Channel Monitoring Procedures.

There is nothing in this standard to indicate that a QPCH provides a short-slot cycle in the paging channel.

In a previous argument, the office action asserts that

> "the modulation employed by F-QPCH allows the mobile to monitor the F-QPCH much more efficiently than it can monitor the paging channel. This allows the mobile to effectively operate at a very short slot cycle in a power-efficient manner. One advantage of using the F-QPCH is to provide the mobile with the means to detect and respond to general page messages from the infrastructure and hence wakeup request messages from the CM, at a faster slot cycle than would otherwise be allowed at the same battery drain rate. This in turn translates to the ability to minimize one component of the delay that contributes directly to PTT latency and the total dormancy wakeup time – the time required to re-establish listener traffic channels."

Applicants contend that the definition of short-slot cycle paging channel as used in the app makes this argument moot, as further discussed below.

Applicants are directed to Col. 7, lines 12-45 and Col. 8, lines 25-42 of Heidari for a processor purportedly capable for providing short-slot-cycle paging in the alleged prior art. Applicants have read these sections where a "determiner" is discussed that "determines" at least the operating conditions of "signals received at the mobile station" (CD) in combination with other environmental operating conditions. Based on the operating conditions, the determiner simply decides whether the CD should interpret the F-QPCH bits or ignore them and monitor the assigned paging channel slot. Col. 7, line 66 – Col. 8, line 16. There is simply nothing in these sections, nor in any other parts of Heidari, that discuss the CD providing the feature of a short-slot-cycle paging information to a BS comprising "determining whether the BS is capable of short-slot-cycle paging; and indicating that the CD is also capable for short-slot-cycle paging if the BS is determined to be capable of short-slot-cycle paging."

Applicants are directed to Col. 6, lines 17-28 and Col. 8, lines 35-47 of Heidari for an indication to the CD that the BS is capable of short-slot-cycle paging. Unfortunately, the Col. 6 paragraph simply describes the standard way that the QPCH is to operate in accordance with the paging channel and does not disclose nor describe any indication or other mechanism for "determining whether the BS is capable of short-slot-cycle paging; and indicating that the CD is also capable for short-slot-cycle paging if the BS is determined to be capable of short-slot-cycle paging." Col. 8 lines simply describe in more detail whether the CD should use QPCH or not based on operating conditions, as described previously. In fact, there is nothing in this cited prior art that performs the function of either "determining whether the BS is capable of short-slot-cycle paging" or "indicating that the CD is also capable for short-slot-cycle paging if the BS is determined to be capable of short-slot-cycle paging." Even if one would assume for the moment that the QPCH and short-slot cycle can be construed to be the same (which they are not), this prior art is primarily concerned with the CD determining if it should make use of the

QPCH based on operating characteristics, without any consultation or indication to the base station. Therefore, Heidari teaches that the base station would continue to transmit the QPCH without knowing if the CD was actually using the QPCH. This course of action has no bearing on the applicants' features. Therefore, applicants respectfully submit that Heidari does not teach all the elements of the independent claims.

Dependent Claims

Claims 2-10, 12-18, 20-28, 30-36, 38-46, 48-54, 56-64 and 66-71 depend directly or ultimately from, and include all the subject matter of, claims 1, 11, 19, 29, 37, 47, 55 and 65, and should be allowed for at least the same reasons presented above regarding the independent claims as well as the additionally recited features found in the claims. Because independent claims 1, 11, 19, 29, 37, 47, 55 and 65 are believed to be allowable, Applicant has not argued or otherwise relied on independent patentability of dependent claims, but reserves the right to do so in this or any subsequent proceeding.

CONCLUSION

In light of the amendments contained herein, Applicants submit that the application is in condition for allowance, for which early action is requested.

Please charge any fees or overpayments that may be due with this response to Deposit Account No. 17-0026.

Respectfully submitted,

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